

Claims:

1. A hot-start mechanism for an internal combustion engine carburetor having an airflow passageway, the mechanism comprising:

a valve in fluid communication with the airflow passageway;

5 an electrically-operated valve-movement mechanism operatively connected to said valve to selectively move said valve, activation of said valve-movement mechanism opening said valve to admit additional air into the airflow passageway; and

10 a valve switch electrically coupled to said valve-movement mechanism for activation of said valve.

2. The hot-start mechanism of Claim 1, further comprising a processor electrically coupled to said switch for control of said valve and a power source electrically coupled to said processor.

15 3. The hot-start mechanism of Claim 2, wherein said valve-movement mechanism comprises a solenoid, and wherein said valve comprises a plunger valve.

4. The hot-start mechanism of Claim 3, further comprising a temperature sensor interconnected with said processor, said temperature sensor providing a signal indicative of the engine temperature, said processor only activating said solenoid to open said valve when the engine temperature is within a predetermined range.

20 5. The hot-start mechanism of Claim 3, further comprising an engine-running sensor interconnected with said processor, said engine-running sensor providing a signal to said processor indicative of whether the engine is running, said solenoid holding said valve closed upon an engine-running condition.

6. The hot-start mechanism of Claim 5, wherein the engine includes a stator, said engine-running sensor being interconnected to the stator to magnetically sense the dynamic rotational state of the engine.

7. The hot-start mechanism of Claim 6, wherein said processor opens said valve upon  
5 predetermined input from said temperature sensor and said engine-running sensor.

8. The hot-start mechanism of Claim 1, wherein said power source comprises a battery.

9. The hot-start mechanism of Claim 1, wherein said power source comprises a capacitor.

10 10. The hot-start mechanism of Claim 4, wherein said processor includes a timer switch for closing said valve after a predetermined time lapses with said valve open.

11. The hot-start mechanism of Claim 4, wherein said processor opens said valve upon predetermined input from said temperature sensor.

12. The hot-start mechanism of Claim 1, further comprising an indicator interconnected  
15 to the switch for signaling to a user of the engine whether said valve is open.

13. The hot-start mechanism of Claim 2, further comprising an override switch interconnected to said valve-movement mechanism to control the position of said valve.

14. The hot-start mechanism of Claim 2, wherein said processor includes a timer switch for closing said valve after a predetermined time lapses with said valve open.

20 15. The hot-start mechanism of Claim 2, wherein said processor includes a timer switch for closing said valve after a predetermined time lapses with said valve open.

16. The hot-start mechanism of Claim 2, further comprising a temperature sensor interconnected with said processor, said temperature sensor providing a signal indicative of the engine temperature, said processor only activating said solenoid to open said valve when the engine temperature is within a predetermined range.

5 17. The hot-start mechanism of Claim 16, wherein the engine includes a start switch and wherein said valve switch is coupled to said start switch for opening of said valve if the engine temperature is within a predetermined range and the start switch is activated.

18. The hot-start mechanism of Claim 2, further comprising an engine-running sensor interconnected with said processor, said engine-running sensor providing a signal to said  
10 processor indicative of whether the engine is running, said solenoid holding said valve closed upon an engine-running condition.

19. The hot-start mechanism of Claim 2, wherein said power source comprises a battery.

20. The hot-start mechanism of Claim 19, further comprising a solar collector coupled  
15 to said battery.

21. The hot-start mechanism of Claim 2, wherein the power source is a capacitor.

22. The hot-start mechanism of Claim 2, further comprising an indicator interconnected to the switch for signaling to a user of the engine whether said valve is open.

23. The hot-start mechanism of Claim 22, wherein said indicator comprises a light.

20 24. The hot-start mechanism of Claim 1, wherein said valve-movement mechanism comprises a solenoid.

25. A method of starting a carbureted engine, comprising the steps of: ✓

electrically opening an air-entrainment valve allowing additional air into the carburetor;

cranking the engine until a running state is achieved; and

5 closing the valve.

26. The method of Claim 25, wherein the valve is a plunger valve and wherein said step of opening the valve is carried out with a solenoid coupled to the plunger valve.

27. The method of Claim 26, additionally comprising determining the need for additional air entrainment.

10 28. The method of Claim 27 wherein determining the need for additional air entrapment comprises sensing the engine temperature.

29. The method of Claim 27, wherein determining the need for additional air entrainment comprises sensing the running state of the engine.

15 30. The method of Claim 29, wherein the running state is determined with an electrical connection to an engine stator.

31. The method of Claim 25, wherein said step of closing the valve is accomplished with a time-out switch.

32. The method of Claim 25, wherein said solenoid is powered with a battery.

33. The method of Claim 32, wherein said battery is charged with a solar collector.

20 34. The method of Claim 33, wherein said closing the valve is accomplished with a time-out switch.

35. The method of Claim 27, wherein said step of determining the need for additional air entrainment comprises sensing the engine temperature.

36. The method of Claim 27, wherein said step of determining the need for additional air entrainment comprises sensing the running state of the engine.

5 37. The method of Claim 25, wherein said step of closing the valve is accomplished with a time-out switch.

38. The method of Claim 25, wherein a vehicle start switch is used to switch open the air-entrainment valve after the step of determining of need for additional air entrainment.

39. The method of Claim 25, wherein a vehicle start switch is used to switch open the  
10 air-entrainment valve after the step of determining of need for additional air entrainment.

40. An air-entrainment mechanism for a carbureted engine, comprising:  
a plunger valve interconnected to the carburetor;  
a solenoid coupled to said valve for opening and closing said valve;  
a battery electrically connected to said solenoid, said battery powering the  
15 movement of said solenoid; and  
a switch electrically coupled to said solenoid to activate said solenoid for  
movement of said valve.

41. The air-entrainment mechanism of Claim 46, wherein said switch further  
comprising a temperature sensor, said switch being closable when said temperature sensor  
20 detects an engine temperature within a predetermined range.